

deployed position when the blade is moved by an outside force from the stowed position at least partially toward the deployed position.

48. (Amended) A knife comprising:

a handle;

a spring movably held in the handle; and

a blade pivotally held in the handle by a pin, the blade pivotal between a stowed position and a deployed position,

wherein the spring is operatively connected to the blade at a point that moves with the blade as the blade moves from the stowed position to the deployed position, and wherein the spring is operatively connected to the blade to exert a directional force on the blade that is at least approximately in line with the pin when the blade is in at least one position as it moves from the stowed toward the deployed position, but while the blade is closer to the stowed position than to the deployed position.

REMARKS

Reconsideration of the Office action dated August 13, 2002, is requested in view of the preceding amendments and the following remarks. Prior to this amendment, claims 1-50 were pending, with claims 1-50 rejected for the reasons addressed below. By this amendment, claims 11, 12, 22, 23, 25, 28, 30, 31, 34, 35, 42, 45, and 48 are amended and claims 32, 38-44 and 46 are cancelled without prejudice.

Specification Informalities

The disclosure was objected to because of various informalities. Applicants have amended the specification to correct the identified informalities.

Claim Informalities

In response to the objection to claim 11 due to informalities, applicants have rewritten claim 11 to correct the identified informalities.

Claim Rejections – 35 U.S.C. § 112

Claims 20 and 22-50 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particular point out and distinctly claim the subject matter which applicant regards as the invention. In response, applicant submits the following remarks and amendments.

35 U.S.C. § 112, second paragraph, requires that the claims particularly point out and distinctly claim the subject matter that applicant regards as his invention. Acceptability of claim language depends on whether one of ordinary skill in the art would understand what is claimed in light of the specification. MPEP 2173.05(b). In this regard, the acceptance of claim language depends on whether the claim language is clear enough to inform the public of the boundaries of what constitutes infringement of the patent. As discussed below, the claim language, read in light of the specification and drawings, provides ample notice to the public of what the applicant regards as his invention.

Specifically, claim 20 was rejected as reciting an “intermediate point” which rendered the claim vague and indefinite since sufficient structure has not been set forth to perform the recited function. The claim language in particular states “the spring being maximally deformed when the blade is pivoted to an intermediate point between the extended position and retracted position, thereby causing the spring to assist opening of the blade when the blade is pivoted from the retracted position toward the extended position beyond the intermediate point.”

Applicant believes that the claim clearly defines the intermediate point as between the extended and retracted position where the spring is maximally deformed. Applicant notes that Figs. 4B and 5B illustrate views of a folding knife with the blade in an intermediate position or point as described in the respective figure descriptions. Thus, the claims, when read in light of the specification, clearly apprise those skilled in the art of what is intended by “intermediate point.” Therefore, applicant respectfully requests the withdrawal of the rejection of claim 20 under 35 U.S.C. § 112.

Claim 22 was rejected under 35 U.S.C. § 112, second paragraph, because “the coil spring” lacked antecedent basis. Applicant has amended claim 22 to depend from claim 21, and thus, there is appropriate antecedent basis for the coil spring.

Claim 23 was rejected under 35 U.S.C. § 112, second paragraph, for various reasons. Specifically, claim 23 was rejected as being vague and indefinite as to the recitation of “a spring operatively connected between the blade and handle.” Applicant has amended claim 23 incorporating the Examiner’s suggested language such that the claim recites a “plunger including a spring” where the “plunger is operatively connected to the blade.”

Claim 23 further was rejected as being vague and indefinite as to how the spring is “configured to exert a pivoting force upon the blade in response to the spring being deformed.” Applicant has amended claim 23 to replace the phrase “configured to” with the phrase “adapted to.” There is nothing inherently wrong with defining some part of an invention in functional terms. In re Swinehart, 439 F.2d 210, 169 USPQ 226 (CCPA). Thus, in the context of the specification and the claims, the use of “adapted” to define the spring is acceptable because it precisely describes structural attributes of the blade and the folding knife. See, e.g., In re

Venezia , 530 F.2d 956, 189 U.S.P.Q. 149 (CCPA 1976) (finding that language such as “members adapted to be positioned” serve to precisely define present structural attributes of interrelated component parts of the claimed assembly).

Claim 23 also was rejected under 35 U.S.C. § 112 for the recitation “the spring being maximally deformed when the blade is pivoted to an intermediate point between the extended position and retracted position, thereby causing the spring to assist opening of the blade when the blade is pivoted from the retracted position toward the extended position beyond the intermediate point.” As described above, functional language does not render a claim improper. See MPEP 2173.05(g). The recited language is similar to the language found definite in In re Venezia, namely “portions...being resiliently dilatable whereby said housing may be slidably positioned.” 530 F.2d 956 (1976). The language of the present application and In re Venezia both adequately detail the relationship between interrelated parts. Thus, the claim language defines the metes and bounds of the claimed invention with a reasonable degree of precision and particularity, and is definite as required by the second paragraph of section 112.

Claim 25 was rejected under 35 U.S.C. § 112, second paragraph, because the recitations “said plunger” and “the path of movement of said plunger” lacked antecedent basis. Applicant has amended claim 23 (from which claim 25 depends) to recite a plunger and has corrected the informality regarding “the path of movement of said plunger” in claim 25.

Claim 26 also was rejected under 35 U.S.C. § 112, second paragraph, because “said plunger” lacked antecedent basis. As described above, applicant has amended claim 23 (from which claim 26 depends) to include a plunger and now believes there is appropriate antecedent basis for all terms in the claim.

Claim 28 was rejected under 35 U.S.C. § 112, second paragraph, because the recitations “said plunger” and “the second end of said plunger” lacked antecedent basis. As described above, applicant has amended claim 23 (from which claim 28 depends) to include a plunger. Applicant also has amended claim 28 to recite “an end of the plunger.” Such amendments provide proper antecedent basis for the terms in the claim.

Claim 30 was rejected under 35 U.S.C. § 112, second paragraph, because the Examiner believes that the recitation “operatively interposed said handle” is awkwardly worded and unclear. Although the Examiner suggests “a word is missing after interposed,” applicant believes that the phrase is clear. Interposed, as defined in Microsoft Bookshelf '95, is “to insert or introduce between parts.” Thus, to include “interposed between” is repetitive and redundant. Therefore, applicant asserts that such recitation is not unclear.

Claim 30 further was rejected under 35 U.S.C. § 112, second paragraph, as being vague and indefinite. Applicant has amended claim 30 to clarify the relationship between the force-transmitting biasing spring and the stowed and deployed conditions of the blade relative to the handle. As described above, functional language may be appropriately used in defining one or more parts of a claimed invention. For example, In Orthokinetics, the language at issue was the term “so dimensioned,” which had been rejected as being indefinite. Orthokinetics, Inc. v. Safety Travel Chairs, Inc., 806 F.2d 1565, 1575, (Fed. Cir. 1986). The Federal Circuit reversed the rejection, holding that the term was sufficiently definite to describe the invention. In making its reversal, the Federal Circuit held that it is an error to require the claims to “‘describe’ the invention, which is the role of the disclosure portion of the specification, not the role of the claims;” and to apply “the ‘full, clear, concise, and exact’ requirement of the first paragraph of

§112 to the claim, when that paragraph applies only to the disclosure portion of the specification, not to the claims.” Id. at 1088. Instead, the Federal Circuit instructed that the appropriate test is “whether those skilled in the art would understand what is claimed when the claim is read in light of the specification.” Id.

Applying the teaching of Orthokinetics to the present application compels the conclusion that applicant’s claim language is sufficiently definite for a person of ordinary skill in the art to understand what is claimed. For example, a person of ordinary skill in the art will understand the claim language where a “spring is operatively interposed said handle and said blade, where said spring exhibits both a rise and a fall in the biasing force carried through the spring when the blade is moved from one of the stowed condition and the deployed condition to the other of the stowed condition and the deployed condition.” Applicant submits that in such a situation where a claim recites that some element is adapted to perform a function, and where the specification contains at least one, if not many, illustrative examples of suitable structure or mechanisms for performing the function, the claim is sufficiently definite as required by 35 U.S.C. § 112. Accordingly, applicant requests that the above rejection under 35 U.S.C. § 112, second paragraph to claim 30 be withdrawn.

Claim 31 was rejected under 35 U.S.C. § 112, second paragraph. Applicant has amended claim 31 to clarify the claim language and believes the claim should be allowable under 35 U.S.C. § 112.

Claim 34 was rejected under 35 U.S.C. § 112, second paragraph, because the Examiner believes that the recitation “operatively interposed said handle” is awkwardly worded and unclear. Applicant has amended claim 34, canceling the language at issue, thereby making the

rejection moot.

Claim 34 also was rejected under 35 U.S.C. § 112, second paragraph, for the recitation “said spring, with movement of said blade generally from either one of such two conditions toward the other condition, exhibiting both an increase and a decrease in the overall length of the spring.” Applicant has amended the claim to reflect the Examiner’s suggestion as to the exhibiting both an increase and decrease in the effective length of the spring. Applicant further has amended the claim to more clearly state the relationship between the spring and the movement of the blade. Specifically, the claim, as amended, recites a spring “having an effective length, . . . where said spring is adapted to exhibit both an increase and a decrease in the effective length of the spring, with movement of said blade generally from one of the stowed condition and the deployed condition toward the other condition.” Applicant submits that the amended claim adequately conveys to a person of ordinary skill in the art what is being covered in the claim. Thus, applicant requests that the above rejection under 35 U.S.C. § 112, second paragraph to claim 34 be withdrawn.

Claim 35 was rejected under 35 U.S.C. § 112, second paragraph. Applicant has amended claim 35 to clarify the claim language and believes the claim should be allowable under 35 U.S.C. § 112.

Claims 38 and 39 were rejected under 35 U.S.C. § 112, second paragraph. Applicant has cancelled claims 38 and 39 without prejudice, thereby rendering these rejections moot.

Similarly, applicant has cancelled claim 42 without prejudice rendering the rejections under 35 U.S.C. § 112, second paragraph moot.

Claim 45 was rejected under 35 U.S.C. § 112 as being vague and indefinite for failing to

recite sufficient structure to perform the recited function. Claim 45 recites a spring that operates on the blade “to maintain the blade in the stowed position when the blade is moved to the stowed position.” The claim further recites that the spring “operates on the blade to urge the blade toward the deployed position when the blade is moved by an outside force from the stowed position at least partially toward the deployed position.” As described above, functional language is appropriate as long as it fairly conveys to a person of ordinary skill in the art what the scope of the claim is. The functional language serves to precisely define structural attributes of the spring and the blade when the blade is moved to the stowed position or toward the deployed position. Applicant believes that the language reasonably apprises those skilled in the art as to the scope of the claimed invention and is appropriate as required under 35 U.S.C. § 112, second paragraph.

Claim 48 was rejected under 35 U.S.C. § 112 as being vague and indefinite for failing to recite sufficient structure to perform the recited function. Claim 48 further was rejected for being vague due to the use of “that” in line 11. Following the Examiner’s suggestion, applicant has amended claim 48 replacing “that” with “than.” As described above, the claim language indicated by the Examiner to be vague and indefinite for failing to recite sufficient structure includes the interrelatedness of the spring, the blade, and the pin as the blade is moved between the stowed and deployed positions. Such functional language does not render the claim indefinite and such language sufficiently apprises those skilled in the art of the metes and bounds of the invention. Thus, applicant respectfully requests reconsideration of the rejection of claim 48 under 35 U.S.C. § 112, second paragraph.

Claim Rejections – 35 U.S.C. § 102

1. 102 rejections based on French publication 1,069,862

Claims 11, 12, 19-21, 23, 30, 31, 34, 35, 38, 39, 42, 45, and 48 stand rejected under 35 U.S.C. § 102(b) as being anticipated by French publication 1,069,862 (FR '862). FR '862 discloses a folding knife having a handle (1, 2) and a blade (6). The decorated portion (13) apparently moves longitudinally along the handle such that it is in a first position when the knife is closed (shown in Fig. 1) and a second position when the knife is open (shown in Fig. 2).

Amended claim 11 recites a “pivoting sleeve provided in said handle.” Support for the amendment is found on pg. 8, line 22 to pg. 9, lines 1-2, which states “pins 95 are received within openings 97 provided in handle portions 12, 14, respectively, to allow pivoting of collar 92 within passage 33 and the blade cavity portion of handle A.” It should be noted that collar 92 is also referred to as a sleeve. (pg. 8, line 20). FR '862 does not disclose a pivoting sleeve. For at least this reason, the Examiner's rejection of independent claim 11 should be withdrawn.

Claim 12 also stands rejected under 35 U.S.C. § 102(b) as being anticipated by FR '862. However, FR '862 does not disclose a “longitudinally extending compressible plunger” having “a first end slidably connected to said handle for longitudinal movement of said plunger relative to said handle as said blade moves between said retracted and extended positions.” Thus, the Examiner's rejection of independent claim 12 should be withdrawn. Claims 19-21 depend from claim 12, and thus, should be allowable for at least the same reasons as claim 12.

Independent claims 23, 30, 34, 38, 45, and 48 were also rejected under FR '862. Claim 23 recites a “plunger including a spring, the plunger pivotally connected to the blade” where the

spring is “adapted to exert a pivoting force upon the blade in response to the spring being deformed, the spring being maximally deformed when the blade is pivoted to an intermediate point between the extended position and retracted position.” However, the FR ‘862 spring, shown in Figs. 9, 10 and 11, does not appear to be maximally deformed when the blade is pivoted to an intermediate point. In contrast, the spring in FR ‘862 appears to be maximally deformed when the blade is in the closed position, and the spring is stretched. Thus, for at least these reasons, the rejection of independent claim 23 should be withdrawn.

Claim 30 recites a plunger including a spring “where said spring exhibits both a rise and a fall in the biasing force carried through the spring when the blade is moved” between the stowed and deployed conditions. As recited in the claim, the spring is a “force-transmitting biasing” spring. One skilled in the art would understand that such a spring may be adapted to impart a biasing force to the blade. One skilled in the art would further understand a “rise” in the biasing force to be an increase in the possible force transmitted by the spring, while a “fall” in the biasing force would be understood to be a decrease in the possible force transmitted by the spring. Thus, as recited in claim 30, applicant’s spring exhibits both an increase in the force transmitted by the spring and a decrease in the force transmitted by the spring as the blade is moved between the stowed and deployed conditions, or vice versa.

However, FR ‘862 discloses a spring that relaxes as the blade is moved toward an open position. Thus, the spring only exhibits a fall in the biasing force carried through the spring as the blade is moved toward an open position. The FR ‘862 does not disclose “both a rise and a fall in the biasing force” as the blade is moved between the two conditions as recited in claim 30. Therefore, for at least this reason, the Examiner’s rejection of independent claim 30

respectively should be withdrawn. Claim 31 depends from claim 30, and thus, should be allowable for at least the same reasons as claim 30

Claim 34 recites a spring having an effective length, where the “spring is adapted to exhibit both an increase and a decrease in the effective length of the spring, with movement of said blade generally from one of the stowed condition and the deployed condition toward the other condition.” In contrast, as the FR ‘862 blade is moved from an open position to a closed position, the spring is stretched, and the effective length of the spring increases. Similarly, as the blade is moved from a closed to open position, the effective length of the spring decreases. Thus, FR ‘862 does not disclose or teach the use of a spring that exhibits “*both* an increase and a decrease in the effective length of the spring, with movement of said blade generally from one of the stowed condition and the deployed condition toward the other condition.” Therefore, for at least this reason, the Examiner’s rejection of independent claim 34 should be withdrawn. Claim 35 depends from claim 34, and thus, should be allowable for at least the same reasons as claim 34.

Claim 45 recites a “plunger, including a spring” where the spring operates on the blade “to maintain the blade in the stowed position when the blade is moved to the stowed position.” The spring in FR ‘740 appears to be maximally stretched in the closed position, and thus, cannot maintain the blade in the closed position. The spring does not, at any point, “maintain the blade in the stowed position.” Thus, FR’862 does not disclose a spring as recited in claim 45, and the Examiner’s rejection of claim 45 should be withdrawn.

Similarly, claim 48 recites a blade pivotally held in the handle by a pin and a spring connected to the blade to “exert a directional force on the blade that is at least approximately in

line with the pin when the blade is in at least one position as it moves from the stowed toward the deployed position, but while the blade is closer to the stowed position than to the deployed position.” The directional force applied through spring (21) is to articulated levers (14, 15) and is not substantially in line with pin (7). Therefore, the Examiner’s rejection of independent claim 48 over FR ‘862 should be withdrawn.

2. 102 rejections based on French publication 1,171,740

Claims 11, 12, 19-21, 23, 30, 31, 34, 35, 38, 39, 42, 45, 48, and 49 stand rejected under 35 U.S.C. § 102(b) as being anticipated by French publication 1,171,740 (FR ‘740). FR ‘740 discloses what appears to be a folding knife with a swinging lever (14) with a first end connected to a blade (11) and a second end connected to a spring (15). Swinging lever (14) and spring (15) are significantly different from applicant’s recited plunger.

Specifically, FR’ 740 does not disclose the “pivoting sleeve” as recited in amended claim 11. Further, applicant recites in claim 12, a “longitudinally extending compressible plunger” having a “first end slidably connected to said handle for longitudinal movement of said plunger relative to said handle.” Unlike applicant’s compressible plunger, neither end of swinging lever (14) is “slidably connected to said handle for longitudinal movement.” To the contrary, one end of FR 740’s spring (15) is attached to swinging lever (14) while the other end appears to be attached to a fixed post. Thus, neither end of spring (15) or swinging lever (14) is “slidably connected to said handle for longitudinal movement” as recited in claim 12. For at least these reasons, the Examiner’s rejection of independent claims 11 and 12 should be withdrawn. Claims 19-21 depend from claim 12, and thus, should be allowable for at least the same reasons as claim 12.

Claim 23 also stands rejected as being anticipated by FR '740. Amended claim 23 recites a "spring adapted to exert a pivoting force upon the blade in response to the spring being deformed, *the spring being maximally deformed when the blade is pivoted to an intermediate point between the extended position and retracted position*, thereby causing the spring to assist opening of the blade when the blade is pivoted from the retracted position toward the extended position beyond the intermediate point." In contrast, in FR '740, spring (15) appears to gradually relax as the blade is opened. Therefore, FR '740 does not disclose a spring (15) that is maximally deformed when the blade is at an intermediate point, and thus, the Examiner's rejection of independent claim 23 should be withdrawn.

Similarly, claim 30 recites a spring that "exhibits both a rise and a fall in the biasing force carried through the spring when the blade is moved from one of the stowed condition and the deployed condition to the other of the stowed condition and the deployed condition." As described above, FR '740 only discloses a spring that gradually relaxes as the blade is moved toward an open position, and thus, the spring only exhibits a fall in the biasing force carried through the spring as the blade is moved toward an open position. Thus, the FR '740 spring does not "exhibit *both* a rise and a fall in the biasing force" as it is moved between the two positions. Therefore, the Examiner's rejection of claim 30 should be withdrawn. Claim 31 depends from claim 30, and thus, should be allowable for at least the same reasons as claim 30.

Claim 34 recites a spring having an effective length, where the "spring is adapted to exhibit both an increase and a decrease in the effective length of the spring, with movement of said blade generally from one of the stowed condition and the deployed condition toward the other condition." As described above, the spring in FR '740 relaxes as it is moved toward the

open position. This relaxation decreases the effective length of the spring. As the spring is moved from an open position to a closed position, the spring is stretched, and the effective length of the spring increases. However, the spring in FR '740 does not exhibit "both an increase and a decrease in the effective length of the spring, with movement of said blade" to an open or a closed position. Thus, the Examiner's rejection of independent claim 34 should be withdrawn. Claim 35 depends from claim 34, and thus, should be allowable for at least the same reasons as claim 34.

Claim 45 recites a spring that operates on the blade "to maintain the blade in the stowed position when the blade is moved to the stowed position." The spring in FR '740 is maximally stretched in the closed position, and thus, cannot maintain the blade in the closed position. The spring does not, at any point, "maintain the blade in the stowed position." Therefore, the Examiner's rejection of independent claim 45 should be withdrawn.

Claim 48 recites a blade pivotally held in the handle by a pin and a spring connected to the blade to "exert a directional force on the blade that is at least approximately in line with the pin when the blade is in at least one position as it moves from the stowed toward the deployed position, but while the blade is closer to the stowed position than to the deployed position." The directional force applied through spring (15) is to lever (14) and never is substantially in line with pin (12). Therefore, the Examiner's rejection of independent claim 48 should be withdrawn. Claim 49 depends from claim 48, and thus, should be allowable for the same reasons as claim 48.

3. 102 rejections based on U.S. Patent No. 4,974,323 to Cassady

Claims 11 and 12 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S.

Patent No. 4,974,323 to Cassady. Cassady discloses a folding knife having a control plate (28) adapted to operate as a “swinging lever” or “swinging rod” as the blade moves between an open and closed position. (col 6., lines 19-20 and 32-36). Control plate (52) moves within specially-shaped cavity (28).

Amended claim 11 recites “a pivoting sleeve.” The structure identified as a sleeve by the Examiner in Cassady is not a “pivoting sleeve” as recited in claim 11. Thus, for at least this reason, the Examiner’s rejection of independent claim 11 based on Cassady should be withdrawn.

Claim 12 also was rejected under 35 U.S.C. § 102(b) as being anticipated by Cassady. However, Cassady’s control plate does not operate as a compressible plunger as recited in claim 12. For at least this reason, the Examiner’s rejection of independent claim 12 based on Cassady should be withdrawn.

4. 102 rejections based on French publication 1,248,117

Claims 11 and 12 stand rejected under 35 U.S.C. § 102(b) as being anticipated by French publication 1,248,117 (FR ‘117). FR ‘117 appears to disclose a pocket knife having a handle (1) and a blade (3). As discussed above, amended claim 11 recites “a pivoting sleeve provided in said handle.” FR ‘117 does not disclose a pivoting sleeve that receives and longitudinally carries a plunger. Thus, for at least this reason, the Examiner’s rejection of independent claim 11 based on FR ‘117 should be withdrawn.

Claim 12 also stands rejected under 35 U.S.C. § 102(b) as being anticipated by FR ‘117. However, the knife disclosed in FR ‘117 does not appear to have any portion that operates as a compressible plunger as recited in amended claim 12. Thus, for at least this reason, the

Examiner's rejection of claim 12 based on FR '117 should be withdrawn.

5. 102 rejections based on U.S. Patent No. 1,743,022 to Carman

Claims 23, 30, 31, 34, 35, 38, 39, 42, and 45 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 1,743,022 to Carman. Unlike amended claim 23, Carman does not disclose any structure that is pivotally connected to the blade. The disclosed springs (7) and (8) in Carman extend into the path of roller bearings (13), such that the roller bearings contact the springs as they travel along arc-shaped slot (16). The springs are not pivotally connected to either one of the blades. Thus, the Examiner's rejection of independent claim 23 should be withdrawn.

Similarly, amended claim 30 recites "a plunger including an elongate, force-transmitting biasing spring, where the plunger is operatively coupled with the blade for orbital movement of a portion of the plunger about the blade." The springs in Carman are not operatively coupled with the blade for orbital movement about the blade. Thus, the Examiner's rejection of independent claim 30 should be withdrawn. Claim 31 depends from claim 30, and thus, should be allowable for at least the same reasons as claim 30.

Likewise, amended claim 34 recites an elongate, force-transmitting biasing spring "operatively attached to" the blade. As described above, the springs in Carman simply contact the roller bearings of the blade as the blade is moved between an open and closed position. The Carman springs are not attached in any manner to the blade. Thus, the Examiner's rejection of independent claim 34 should be withdrawn. Claim 35 depends from claim 34, and thus, should be allowable for at least the same reasons as claim 34.

Claim 45 recites "a plunger including a spring, where the plunger is coupled to the blade

such that a portion of the plunger remains a fixed distance from the blade pivot point.” The Carman springs are not coupled to the blade, nor do they remain a fixed distance from the blade pivot point. Therefore, the Examiner’s rejection of independent claim 45 should be withdrawn.

6. 102 rejections based on U.S. Patent No. 4,451,982 to Collins

Claims 23, 30-32, 34-36, 38, 39, 42, 43, 45, and 46 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,451,982 to Collins. Collins discloses a bolt action knife including a bolt mechanism (24) with a spring (62). Bolt mechanism (24) slides against the shank of the blade as it is moved from an open to closed position. Bolt mechanism (24) functions primarily to lock the blade in a selected position.

Collins’ bolt mechanism does not anticipate the applicant’s recited claims. Specifically, claim 23 recites a “plunger including a spring, the plunger pivotally connected to the blade.” Collins’ bolt mechanism is not pivotally connected to the blade. Instead, Collins’ bolt mechanism slides or rubs against the blade as the blade pivots. Thus, the Examiner’s rejection of independent claim 23 should be withdrawn.

Similarly, amended claim 30 recites “a plunger including an elongate, force-transmitting biasing spring, where the plunger is operatively coupled with the blade for orbital movement of a portion of the plunger about the blade.” No part of Collins’ bolt mechanism is operatively coupled with the blade for orbital movement about the blade. Thus, the Examiner’s rejection of independent claim 30 should be withdrawn. Claim 31 depends from claim 30, and thus, should be allowable for at least the same reasons as claim 30.

Amended claim 34 recites an elongate, force-transmitting biasing spring “operatively attached to” the blade. Collins’ spring is not attached to the blade, but instead only rubs

against the blade. Thus, the Examiner's rejection of independent claim 34 should be withdrawn. Claims 35 and 36 depend from claim 34, and thus, should be allowable for at least the same reasons as claim 34.

Claim 45 recites "a plunger including a spring, where the plunger is coupled to the blade such that a portion of the plunger remains a fixed distance from the blade pivot point." As described above, no part of Collins' bolt mechanism is coupled to the blade, nor does the bolt mechanism remain a fixed distance from the blade pivot point. Therefore, the Examiner's rejection of independent claim 45 should be withdrawn.

7. 102 rejections based on U.S. Patent No. 5,325,588 to Rogers

Claims 23, 30-32, 34-36, 38-40, 42, 43, 45, and 46 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,325,588 to Rogers. Rogers discloses a knife that may be locked in two or more cutting positions. As described, only Figs. 5 and 6 disclose folding knives. As disclosed in Figs. 5 and 6, Rogers' knife includes a blade (2) having a positioning means (6) with slots (35). The slots mate with engagement means (8) to lock the blade in various positions. Resilient means (11) urges the engagement means against the positioning means to lock the blade into place. (col. 3, lines 53-57). Thus, Rogers' resilient means operates significantly different than the device disclosed in applicant's specification.

More specifically, claim 23 recites a "plunger including a spring, the plunger pivotally connected to the blade." Neither Rogers' engagement means, nor Rogers' resilient means is pivotally connected to the blade. Thus, the Examiner's rejection of independent claim 23 should be withdrawn.

Similarly, amended claim 30 recites "a plunger including an elongate, force-transmitting

biasing spring, where the plunger is operatively coupled with the blade for orbital movement of a portion of the plunger about the blade.” As described above, Rogers’ engagement means is not operatively coupled with the blade for orbital movement about the blade, and thus, the Examiner’s rejection of independent claim 30 should be withdrawn. Claim 31 depends from claim 30, and thus, should be allowable for at least the same reasons as claim 30.

Amended claim 34 recites an elongate, force-transmitting biasing spring “operatively attached to” the blade. Rogers’ engagement means is not attached to the blade, but instead is matingly insertable within the slots on the positioning means of the blade. Thus, the Examiner’s rejection of independent claim 34 should be withdrawn. Claims 35 and 36 depend from claim 34, and thus, should be allowable for at least the same reasons as claim 34.

Claim 45 recites “a plunger including a spring, where the plunger is coupled to the blade such that a portion of the plunger remains a fixed distance from the blade pivot point.” As described above, Rogers’ engagement means is not attached to the blade, but instead is matingly insertable within the slots on the positioning means of the blade. Moreover, the engagement means does not remain a fixed distance from the blade pivot point. Therefore, the Examiner’s rejection of independent claim 45 should be withdrawn.

8. 102 rejections based on German publication 28765

Claims 23, 30, 31, 34, 35, 38, 39, 42, 43, 45, and 48 stand rejected under 35 U.S.C. § 102(b) as being anticipated by German publication 28765 (DE ‘765). Although the Examiner does not provide any explanation as to how DE ‘765 supposedly anticipates the enumerated claims, it appears that DE ‘765 includes a spring (a1) that appears to bias the blade to an open

position.

DE '765 does not anticipate claim 23. Specifically, claim 23 recites “a spring operatively connected to the blade and handle and adapted to exert a pivoting force upon the blade in response to the spring being deformed, *the spring being maximally deformed when the blade is pivoted to an intermediate point between the extended position and retracted position*, thereby causing the spring to assist opening of the blade when the blade is pivoted from the retracted position toward the extended position beyond the intermediate point.” The spring in DE '765 appears to be maximally deformed when the blade is in the closed position – not an intermediate position. Thus, the Examiner’s rejection of independent claim 23 should be withdrawn.

Similarly, DE '765 cannot anticipate claim 30. Claim 30 recites a spring that “exhibits both a rise and a fall in the biasing force carried through the spring when the blade is moved from one of the stowed condition and the deployed condition to the other of the stowed condition and the deployed condition.” As described above, one skilled in the art would understand a “rise” in the biasing force to be an increase in the possible force transmitted by the spring, while a “fall” in the biasing force would be understood to be a decrease in the possible force transmitted by the spring. Thus, as recited in claim 30, applicant’s spring exhibits both an increase in the force transmitted by the spring and a decrease in the force transmitted by the spring as it moves between the stowed and deployed conditions, or vice versa. In contrast, the spring in DE '765 only retracts as the blade is moved toward an open position. Thus, since the DE '765 spring does not “exhibit both a rise and a fall in the biasing force” as it is moved between the two positions, the Examiner’s rejection of claim 30 should be withdrawn. Claim 31

depends from claim 30, and thus, should be allowable for at least the same reasons as claim 30.

Claim 34 recites a spring having an effective length, where the “spring is adapted to exhibit both an increase and a decrease in the effective length of the spring, with movement of said blade generally from one of the stowed condition and the deployed condition toward the other condition.” As described above, the spring in DE ‘765 relaxes as the blade is moved toward the open position. This relaxation decreases the effective length of the spring. The spring does not exhibit “*both* an increase and a decrease in the effective length of the spring, with movement of said blade” between either one of the positions. Thus, the Examiner’s rejection of independent claim 34 should be withdrawn. Claim 35 depends from claim 34, and thus, should be allowable for at least the same reasons as claim 34.

Claim 45 recites a spring, which operates on the blade, “to maintain the blade in the stowed position when the blade is moved to the stowed position, and operates on the blade to urge the blade toward the deployed position when the blade is moved by an outside force from the stowed position at least partially toward the deployed position.” The spring in DE ‘765 does not “maintain the blade in the stowed position.” Instead, the spring is taut, ready to pull the blade to the open position whenever switch (c1) is released. Thus, the Examiner’s rejection of independent claim 45 should be withdrawn.

Claim 48 recites a blade pivotally held in the handle by a pin and a spring connected to the blade to exert a directional force on the blade “that is at least approximately in line with the pin when the blade is in at least one position as it moves from the stowed toward the deployed position.” The spring in DE ‘765 exerts a force that is tangential to the outer circumference of the tang of the blade which never is close to being in line with the pin that

holds the blade. Thus, the Examiner's rejection of independent claim 45 should be withdrawn.

Claim Rejections – 35 U.S.C. § 103

1. Obviousness rejections based on French publication 1,069,862

Claims 13 and 24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over FR '862 in view of U.S. Patent No. 5,131,149 to Thompson. Claim 13 depends from independent claim 12 and includes all limitations of claim 12. As discussed above, FR '862 does not disclose, teach or suggest a "longitudinally extending compressible plunger" having "a first end slidably connected to said handle for longitudinal movement of said plunger relative to said handle as said blade moves between said retracted and extended positions" as recited in claim 12. Similarly, there is no disclosure or teaching in Thompson regarding a compressible plunger. Therefore, since neither FR '862, nor Thompson disclose, teach or suggest the knife as recited in claim 12, claim 12 should be allowable. Claim 13 depends from claim 12 and should be allowable for at least the same reasons as claim 12. Thus, the rejection of claim 13 based on FR '862 in view of Thompson should be withdrawn.

Similarly, claim 24 depends from claim 23. Neither FR' 862, nor Thompson, disclose, teach or suggest a "plunger including a spring" where the spring is "adapted to exert a pivoting force upon the blade in response to the spring being deformed, the spring being maximally deformed when the blade is pivoted to an intermediate point between the extended position and retracted position" as recited in claim 23. Therefore, claim 24, which incorporates all the limitations of claim 23, is not obvious over FR '862 and Thompson, and this rejection should be withdrawn.

Claims 16 and 27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over FR '862 in view of U.S. Patent No. 5,546,662 to Seber. Claim 16 depends from independent claim 12 and includes all limitations of claim 12. As discussed above, FR '862 does not disclose, teach or suggest a "longitudinally extending compressible plunger" having "a first end slidably connected to said handle for longitudinal movement of said plunger relative to said handle as said blade moves between said retracted and extended positions" as recited in claim 12. Similarly, there is no disclosure or teaching in Seber regarding a compressible plunger. Therefore, since neither FR '862, nor Seber disclose, teach or suggest the knife of claim 12, claim 12 should be allowable over the combination of FR '862 and Seber. Since claim 16 depends from claim 12, claim 16 should be allowable for at least the same reasons as claim 12. Thus, the rejection of claim 16 based on FR '862 in view of Seber should be withdrawn.

Similarly, claim 27 depends from claim 23. Neither FR' 862, nor Seber disclose, teach or suggest all the limitations of independent claim 23. Therefore, the rejection of claim 27 over the combination of FR '862 and Seber should be withdrawn.

Claims 17 and 28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over FR '862. Claims 17 and 28 depend from independent claims 12 and 23, respectively. As described above, FR '862 does not disclose, teach or suggest all the limitations of claims 12 and 23. Therefore, applicant respectfully requests the withdrawal of the rejection of claims 17 and 28 under 35 U.S.C. § 103(a).

Claims 18 and 29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over FR '862 in view of U.S. Patent No. 1,701,027 to Brown. Neither FR' 862, nor Brown

disclose, teach or suggest all the limitations of independent claims 12 and 23. Thus, applicant respectfully requests the withdrawal of the rejection of claims 18 and 29 under 35 U.S.C. § 103(a), where claims 18 and 29 depend from and include all the features of independent claims 12 and 23, respectively.

2. Obviousness rejections based on U.S. Patent No. 1,743,022 to Carman

Claim 24 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Carman in view of U.S. Patent No. 5,131,149 to Thompson. As discussed above, claim 24 depends from claim 23. There is no disclosure, teaching or suggestion within either Carman or Thompson of a plunger “pivotally connected to the blade” as recited in claim 23. Thus, since claim 24 depends from and includes all the features of independent claim 23, the rejection to claim 24 under 35 U.S.C. § 103(a) over Carman in view of Thompson should be withdrawn.

Claim 27 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Carman in view of U.S. Patent No. 5,546,662 to Seber. Neither Carman, nor Seber disclose, teach or suggest all the limitations of claim 23. Therefore, the rejection under 35 U.S.C. § 103(a) over Carman in view of Seber, of claim 27, which includes the limitations of claim 23, should be withdrawn.

3. Obviousness rejections based on U.S. Patent No. 4,451,982 to Collins

Claim 24 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Collins in view of U.S. Patent No. 5,131,149 to Thompson. As discussed above, claim 24 depends from claim 23. There is no disclosure, teaching or suggestion within either Collins or Thompson of a plunger “pivotally connected to the blade” as recited in claim 23. Thus, since claim 24 depends from, and includes, all the features of independent claim 23, the rejection

to claim 24 under 35 U.S.C. § 103(a) over Collins in view of Thompson should be withdrawn.

Claim 27 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Collins in view of U.S. Patent No. 5,546,662 to Seber. Neither Collins, nor Seber disclose, teach or suggest all the limitations of claim 23. Therefore, the rejection under 35 U.S.C. § 103(a) over Collins in view of Seber of claim 27, which includes the limitations of claim 23, should be withdrawn.

Claim 29 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over FR '862 in view of U.S. Patent No. 1,701,027 to Collins. As discussed above, neither Collins, nor Brown disclose, teach or suggest all the limitations of independent claim 23. Thus, applicants respectfully request the withdrawal of the rejection of claim 29 under 35 U.S.C. § 103(a), for at least the reason that claim 29 depends from and include all the features of allowable independent claim 23.

4. Obviousness rejections based on U.S. Patent No. 5,325,588 to Rogers

Claim 24 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Rogers in view of U.S. Patent No. 5,131,149 to Thompson. As discussed above, claim 24 depends from claim 23. There is no disclosure, teaching or suggestion within either Rogers or Thompson of a plunger “pivotally connected to the blade” as recited in claim 23. Thus, since claim 24 depends from and includes all the features of independent claim 23, the rejection to claim 24 under 35 U.S.C. § 103(a) over Rogers in view of Thompson should be withdrawn.

Claim 27 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Rogers in view of U.S. Patent No. 5,546,662 to Seber. Neither Rogers, nor Seber disclose, teach or

suggest all the limitations of claim 23. Therefore, the rejection under 35 U.S.C. § 103(a) over Rogers in view of Seber of claim 27, which includes the limitations of claim 23, should be withdrawn.

Claim 29 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Rogers in view of U.S. Patent No. 1,701,027 to Brown. Neither Rogers, nor Brown disclose, teach or suggest all the limitations of independent claim 23. Thus, applicant respectfully requests the withdrawal of the rejection of claim 29 under 35 U.S.C. § 103(a), for at least the reason that claim 29 depends from and includes all the features of allowable independent claim 23.

Consent of Assignee to Reissue (MPEP 1410.01)

Applicant resubmits copies of the documents referenced in the previously submitted paper SUBMISSION OF OWNERSHIP INTEREST AND CONSENT TO REISSUE APPLICATION. Specifically, applicant submits another copy of the SUBMISSION OF OWNERSHIP INTEREST AND CONSENT TO REISSUE APPLICATION and a copy of the Agreement between B & F Systems and Kai U.S.A., Ltd, selling, assigning and transferring all right, title and interest in and to any reissues and extensions of U.S. Patent No. 5,815,927. Applicant also submits a copy of the Agreement between Walter W. Collins and Kai, U.S.A, Ltd., selling, assigning and transferring the entire right, title, and interest in and to U.S. Patent No. 5,815,927.

Applicant believes that such documents establish its ownership interest as required under 37 C.F.R. § 3.73(b).

Recapture (MPEP 1412.02)

The present reissue application was filed October 6, 2000, the two-year anniversary of

the date of the patent grant (October 6, 1998). A reissue application filed on the two-year anniversary date from the patent grant is considered to be within two years of the patent grant. See Switzer v. Sockman, 333 F.2d 935 (CCPA 1964). Thus, applicant filed the present reissue application during the time period stated under 35 U.S.C. § 251 for broadening reissues.

As noted by the Examiner, a reissue will not be granted to “recapture” claimed subject matter, which was surrendered in an application to obtain the original patent. Hester Industries, Inc. v. Stein, Inc., 142 F.3d 1472 (Fed. Cir. 1998). In other words, the recapture rule bars the patentee from acquiring through reissue, claims that are of the same or of broader scope than those claims that were cancelled from the original application. See Ball Corp. v. United States, 729 F.2d 1429, 1436 (Fed. Cir. 1984). To determine what subject matter has been surrendered, the prosecution history of the original application must be examined.

Reissue claims that are broader in some respects and narrower in others may avoid the effect of the recapture rule. Mentor Corp. v. Coloplast, Inc., 998 F.2d 992, 996 (Fed. Cir. 1993). For example, in one of the cases cited by the Examiner, the court found that the recapture rule was avoided because the reissue claims were sufficiently narrowed despite the broadened aspects of the claims. Ball, 729 F.2d at 1439. Similarly, in the present reissue application, the claims are broader in certain respects and narrower in others. None of the claims recite only the same elements of the claims of the original application. Additional functional and structural limitations, not recited in the original claims, are present in each of the reissue claims. Specifically, claim 12 recites a “longitudinally extending compressible plunger adapted to assist with moving the blade between the retracted position and the extended position, or vice versa.” Although broadening the original claims in some respects, structural and functional

limitations to the plunger narrow the original claims in other respects. The broadening aspect of the claim does not attempt to reclaim any subject matter that was surrendered during prosecution of the earlier application.

Similarly, independent claims 23, 30, 34, 42, 45 and 48 do not attempt to recapture subject matter that was previously surrendered. Each of the claims is different in scope (both broader and narrower) than the original claims.

Reissue Oath/Declaration (MPEP 1414)

Applicant submits a Substitute Declaration of Walter W. Collins and Petition for Reissue in compliance with 37 CFR 1.175

Maintenance Fees on the Original Patent (MPEP 1415.01)

Applicant attaches a copy of the Applicant's SUBMISSION OF FIRST U.S. MAINTENANCE FEE AND SURCHARGE AND STATEMENT OF UNAVOIDABLE DELAY and accompanying Exhibits as filed with the U.S. Patent and Trademark Office on October 15, 2002.

Offer to Surrender Original Patent (MPEP 1416)

Applicant notes that Kai, U.S.A. made an offer to surrender U.S. Patent No. 5,815,927 in the Applicant's paper entitled SUBMISSION OF OWNERSHIP INTEREST AND CONSENT TO REISSUE APPLICATION. Applicant understands that the original patent, or a statement as to loss or inaccessibility of the original patent, must be received before the Examiner can allow the reissue application.

Claim Rejections – Defective Oath/Declaration

As discussed above, applicant has enclosed a substitute oath/declaration correcting the

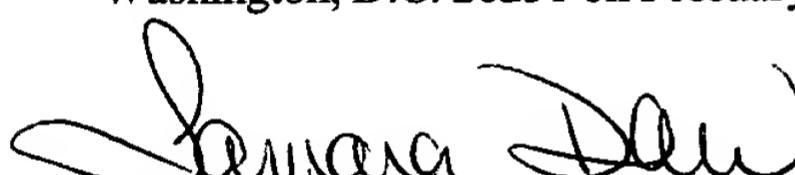
informalities raised by the Examiner. The applicant requests the withdrawal of the rejection of claims 1-50 based upon a defective reissue declaration under 35 U.S.C. § 251.

Conclusion

The above amendments and remarks are believed to fully address the Examiner's rejections, and to place the entire application in condition for allowance. A prompt indication of the same is respectfully requested. As required by 37 C.F.R. § 1.121, applicant has provided a separate marked-up version of the amended specification and claims. The Examiner is encouraged to telephone the undersigned if any issues remain that may be resolved by a telephonic interview.

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents, Washington, D.C. 20231 on February 13, 2003.

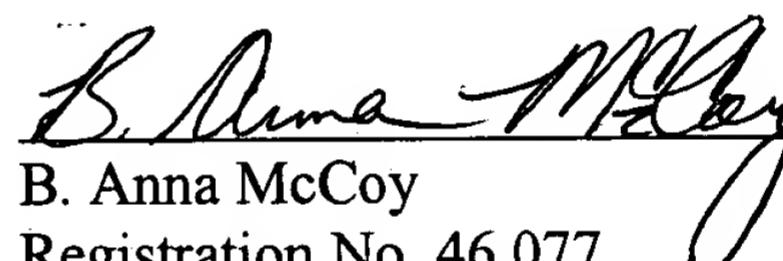


Tamara Daw

Date of Signature: February 13, 2003



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

Please replace page 4, lines 3- 4 with the following:

FIG. 2 is a perspective view of the reverse side of the knife illustrated in FIG. [2] 1;

Please replace page 9, lines 3-8 with the following:

Clevis pin 86 is received within hole 62 of blade B upon assembly of knife 10. Since pin 86 is at a fixed distance from pivot pin 56 as the blade pivots between the retracted and extended positions, pin 86, and accordingly, end 87, of clevis 82 moves through a corresponding arc, the radius of the arc being the distance between the centers of holes 84 of clevis 82 and pin [62] 56 of blade B.

In the Claims:

Please cancel claims 32, 38-44 and 46 without prejudice.

Please amend claims 11, 12, 22, 23, 25, 26, 28, 30, 31, 34, 35, 45, and 48 as follows:

11. (Amended) A folding knife, comprising:

a handle defining a blade cavity and a first end;

a blade having a first end and a second end opposite said first end; said first end of said blade having a blade pivot connected to said first end of said handle for pivotal movement of said blade about said blade pivot between an extended position wherein the blade is outside of said blade cavity and a retracted position wherein the blade is substantially within said blade cavity;

a longitudinally extending plunger carried in said blade cavity and having a first end and a second end wherein said second end is opposite said first end;

a pivoting sleeve provided in said handle, said sleeve receiving and longitudinally slidably carrying said first end of said plunger for longitudinal movement of said plunger relative to said sleeve as said blade moves between said retracted and extended positions; and said second end of said plunger being pivotally connected to said first end of said blade for orbital movement about said blade pivot as said blade moves between said retracted and extended positions.

12. (Amended) A folding knife, comprising:

a handle defining a blade cavity and a first end;
a blade having a first end and a second end opposite said first end; said first end of said blade having a blade pivot connected to said first end of said handle for pivotal movement of said blade about said blade pivot between an extended position wherein the blade is outside of said blade cavity and a retracted position wherein the blade is substantially within said blade cavity; and

a longitudinally extending compressible plunger adapted to assist with moving the blade between the retracted position and the extended position, or vice versa, the plunger having:

a first end slidably connected to said handle for longitudinal movement of said plunger relative to said handle as said blade moves between said retracted and extended positions; and

a second end opposite said first end, said second end of said plunger pivotally connected to said first end of said blade for orbital movement about said blade pivot as said blade moves between said retracted and extended positions.

22. (Amended) A knife as defined in claim [12] 21, wherein the coil spring encircles said plunger.

23. (Amended) A folding knife, comprising:

a handle defining a blade cavity and a first end;
a blade having a first end and a second end opposite said first end; said first end of said blade having a blade pivot connected to said first end of said handle for pivotal movement of said blade about said blade pivot between an extended position wherein the blade is outside of said blade cavity and a retracted position wherein the blade is substantially within said blade cavity; and

a plunger including a spring, the plunger pivotally [operatively] connected [between] to the blade [and handle and configured], the spring adapted to exert a pivoting force upon the blade in response to the spring being deformed, the spring being maximally deformed when the blade is pivoted to an intermediate point between the extended position and retracted position, thereby causing the spring to assist opening of the blade when the blade is pivoted from the retracted position toward the extended position beyond the intermediate point.

25. (Amended) A knife as defined in claim 23, further comprising a safety member connected to said handle for movement between a locking position and an unlocking position; said safety member defining an engagement portion projecting into [the] a path of movement of said plunger when said safety member is in said locking position for contacting and restraining movement of said plunger when said blade is in said extended position, to thereby lock said blade in said extended position.

28. (Amended) A knife as defined in claim 23, wherein [said second] an end of said plunger includes a clevis having a pin pivotally connected to said first end of said blade.

30. (Amended) A folding knife comprising:

a handle;

a blade pivoted on said handle for movement between stowed and deployed conditions relative to the handle; and

a plunger including an elongate, force-transmitting biasing spring, where the plunger is operatively coupled with the blade for orbital movement of a portion of the plunger about the blade and the spring is operatively interposed said handle and said blade, where said
spring [, with movement of said blade generally from either one of such two conditions toward the other condition, exhibiting] exhibits both a rise and a fall in the biasing force carried through the spring when the blade is moved from one of the stowed condition and the deployed condition to the other of the stowed condition and the deployed condition.

31. (Amended) The knife of claim 30, wherein the mentioned rise and fall in biasing force occur [in the order rise/fall] such that the rise in the biasing force occurs before the fall in the biasing force.

34. (Amended) A folding knife comprising:

a handle;

a blade pivoted on said handle for movement between stowed and deployed conditions relative to the handle; and

an elongate, force-transmitting biasing spring having an effective length, the spring operatively [interposed said handle and] attached to said blade, where said spring[,] is

adapted to exhibit both an increase and a decrease in the effective length of the spring, with movement of said blade generally from [either] one of the stowed condition and the deployed condition [one of such two conditions] toward the other condition[, exhibiting both an increase and a decrease in the overall length of the spring].

35. (Amended) The knife of claim 34, wherein the [mentioned] increase in the effective length occurs before the [and] decrease in effective length [occur in the order increase-decrease].

45. (Amended) A knife comprising:

a handle;

a blade pivotally held in the handle to move about a blade pivot point, such that the blade moves between a stowed position and a deployed position; and

a plunger including a spring, where the plunger is coupled to the blade such that a portion of the plunger remains a fixed distance from the blade pivot point, and where [operatively interconnecting the blade to the handle, wherein] the spring operates on the blade to maintain the blade in the stowed position when the blade is moved to the stowed position, and operates on the blade to urge the blade toward the deployed position when the blade is moved by an outside force from the stowed position at least partially toward the deployed position.

48. (Amended) A knife comprising:

a handle;

a spring movably held in the handle; and

a blade pivotally held in the handle by a pin, the blade pivotal between a stowed position and a deployed position,

wherein the spring is operatively connected to the blade at a point that moves with the blade as the blade moves from the stowed position to the deployed position, and wherein the spring is operatively connected to the blade to exert a directional force on the blade that is at least approximately in line with the pin when the blade is in at least one position as it moves from the stowed toward the deployed position, but while the blade is closer to the stowed position [that] than to the deployed position.